

Use of Thin Films for the Study of Stress Effects on the Superconducting Transition of Indium, A. M. Toxen, *The Physical Review*, **124**, No. 4, 1018-1020 (November 15, 1961).

Measurements on evaporated thin films of superconductors provide a powerful technique for studying stress effects on the superconductivity transition. Utilization of the differential thermal expansion of film and substrate by suitable choice of substrate and substrate temperature during evaporation provides a convenient way for controlling the stress in the films. In this manner, uniform tensile and compressive stresses of substantial magnitude can be obtained and are tolerable because of the great strength of thin films. To illustrate how this technique can be used, studies are shown of similarity effects in indium films under the influence of biaxial stress and a generalization of the usual similarity relations is suggested.

X-Ray Polarizer, H. Cole, F. W. Chambers, and C. G. Wood, *Journal of Applied Physics*, **32**, No. 10, 1942-1945 (October, 1961).

In the Borrmann effect, or the anomalous transmission by diffraction of X-rays through perfect crystals, one state of polarization of the X-ray beam is preferentially absorbed. Since this happens in the "transmitted" as well as in the diffracted beam, a simple polarizer-monochromator is possible in

the sense that insertion and rotation of the polarizer does not sensibly change the line of action of the X-ray beam. We have used as our "Borrmann crystal" a single slab of dislocation-free germanium approximately 30 mils thick and cut for symmetric Laue diffraction from the 220 planes. The details of the rotating crystal holder, an analysis of the polarization, comments on the double-crystal geometrical effects, and an example of the use of the polarizer-monochromator to study the polarization term in Bragg diffraction are presented.

Zur Röntgen-Fluoreszenz-Analyse dünner Legierungsschichten (X-Ray Fluorescence Analysis of Thin Alloy Films), J. C. Lloyd and A. Segmüller, *Zeitschrift für Naturforschung*, **Band 16a**, Heft 10, 1097-1098 (October, 1961).

In contrast to the X-ray fluorescence analysis in bulk alloys, the intensity of fluorescence radiation in thin films is neither influenced by absorption nor by secondary excitation. Therefore, the intensity of the excited radiation of one component depends only on, and is proportional to, the total mass of this component within the irradiated part of the film. For chemical analysis of an alloy film only the ratio of the constants of this linear equation is required. This ratio can be determined with standard samples made from a wet solution of both components homogeneously dried on filter paper disks. The analysis of ternary alloy systems is also discussed.

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Interrecord Noise Elimination	H. A. O'Brien	3,005,189
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Three-Position Electromagnetic Actuator	E. G. Newman	3,007,085
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Record Card Reader	E. Estrems	3,008,126
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Electrical Circuits having Two Different Conductive States	A. S. Myers, Jr.	3,010,030
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Clutching Mechanisms having Acceleration and Deceleration Operations	R. V. Muffley and T. F. Flavin	3,011,611
Record Punching Machine	J. C. Baker	3,011,697
Selectively Operable Apparatus Actuated by Cyclically Applied Fluid Impulses	D. P. Darwin and R. M. Kellogg	3,011,698
Numeric Information Storage and Translation System	F. E. Sakalay and D. E. Elder	3,011,710
Signal Storage System	M. M. Astrahan, W. L. Batchelor, B. Housman, H. L. Kurkjian and B. L. Sarahan	3,012,227
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Typewriting Calculating Machine	G. A. Maley	3,013,250
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Binary Full Adders	J. W. Horton and A. G. Anderson	3,014,663
Formation of P-N Junctions	L. P. Hunter	3,014,819
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Superconductor Circuitry	D. R. Young	3,015,041
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